

THE ANNALS  
AND  
MAGAZINE OF NATURAL HISTORY.

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XX.—*On the Stinging property of the Lesser Weever-fish*  
(*Trachinus Vipera*). By GEORGE JAMES ALLMAN, Esq.  
*In a Letter to* WM. THOMPSON, Esq., Vice-Pres. Natural  
History Society of Belfast.

Bandon, August 20, 1840.

MY DEAR SIR,

I HAVE lately had an opportunity of making some observations on the reputed stinging power of the Lesser Weever (*Trachinus Vipera*), and the result, I think, may tend to clear up a point with respect to which much difference has prevailed among naturalists. The older naturalists seem almost universally to coincide with the popular opinion entertained respecting this little fish, and to agree in ascribing venomous properties to the wounds inflicted with its spines. There can be little doubt that the fishes to which the ancients gave the names *Araneus*, *Draco*, *Dracunculus*, and probably some others, were the Greater and Lesser Weevers of our coasts; and to those they invariably attribute poisonous properties. Pliny accuses the *Araneus* of inflicting dangerous wounds with the spines of its back. After speaking of a poisonous fish which he calls *Lepus*, he says, “*Æque pestiferum animal araneus, spinæ in dorso aculeo noxius\**.” In another place, speaking of *Dracunculus*, he tells us that it inflicts poisoned wounds with the spines of the opercula: “*Aculeos in branchiis habet ad caudam spectantes, sic ut scorpio lædit dum manu tollitur†*.” Similar properties are attributed to the dorsal spines of these fishes by *Ælian* and *Oppian*. In the following passage from the *Halieutics* several spinous fishes are grouped together, all of which are described by the poet as inflicting poisoned wounds, though some of them are undoubtedly innocuous, and classed here with venomous fishes, for the same reason which induces our own fishermen to attribute to the

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different species of *Cottus*, and other spiny fishes, poisonous properties. For directing my attention to the passage, as well as for the accompanying translation, I am indebted to the Rev. W. Hamilton Drummond, D.D., to whom much is due for introducing this curious poet to the English reader\*.

Κεντρα δε πευκηεντα μετ' ιχθυσιν ωπλισαντο,  
 Κωβιος, ος ψαμαθοισι και ος πετρησι γεγηθε,  
 Σκορπιος, ωκειαι τε χελιδονες, ηδε δρακοντες  
 Και κυνες, οι κεντροισιν επωνυμοι αργαλειοισι'  
 Παντες αταρτηροισ υπο νυγμασιν ιον ιεντες.

*Hal.* ii. 457.

“Cruel spines

Defend some fishes, as the Goby, fond  
 Of sands and rocks, the Scorpion, Swallows fleet,  
 Dragons and Dog-fish, from their prickly mail  
 Well named the spinous. *These, in punctures sharp,  
 A fatal poison from their spines inject.*”

None of the older naturalists, indeed, ever think of denying venomous properties to the Weever; it is the dorsal spines, however, which are almost constantly spoken of as the seat of the virus. Willughby says the six dorsal spines are considered venomous, and therefore the fishermen cut them off on taking a fish. He does not, however, think it proved that the poison is confined to these spines.

Universal as was the belief among the ancients of the venomous character of the Weever, the idea seems to be now almost as universally abandoned, and modern naturalists agree almost to a man in considering it a vulgar error, fit only to be placed among the rubbish which recent investigations have been so rapidly clearing away from the science of nature. Cuvier treats it altogether as an error, and even denies the possibility of the Weever inflicting poisoned wounds. Speaking of its spine, he says, “N’ayant aucun canal, ni communicant avec aucune glande, elles ne peuvent verser dans les plaies un v nin proprement dit †.”

Powerful as is this authority, and that of many other of the moderns, I have been notwithstanding induced to come to quite a different conclusion, and to agree with the ancients in ascribing venomous properties to the Weever.

On the 9th of August, 1839, I was wounded near the top of the thumb by a *Trachinus Viperas*, which had just been taken in a seine with herrings, sand-eels, &c. The wound was in-

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flicted by the spine attached to the gill-covers, during my attempt to seize the fish. A peculiar stinging pain occurred a few seconds after the wound, and this gradually increased during a period of about fifteen minutes. The pain had now become most intolerable, extending along the back of the thumb towards the wrist; it was of a burning character, resembling the pain produced by the sting of a wasp, but much more intense. The thumb now began to swell, and exhibited an inflammatory blush, extending upwards to the wrist. The pain was now distinctly throbbing and very excruciating. In this state it continued for about an hour, when the pain began somewhat to subside, the swelling and redness still continuing. In about an hour and a half the pain was nearly gone. Next morning the swelling of the thumb had but slightly diminished, and was in some degree diffused over the back of the hand; the thumb continued red and hot, and painful on pressure over the metacarpal bone. In a few days the swelling had completely subsided, but the pain on pressure continued for more than a week. No treatment was adopted.

It is here to be remarked, that the wound, of which the above phænomena were the result, was inflicted by the spine of the gill-cover, and not by those belonging to the dorsal fin. Whether, indeed, these latter spines possess any poisonous properties, I have not as yet been able decidedly to determine, though their threatening aspect when erected, and black membrane, present an appearance so formidable, as at once to lead an inexperienced observer to refer to them any stinging power which the little animal may be supposed to possess.

Though I have had no opportunity of making further personal observations on the effects of wounds inflicted by the Weever, facts which fully bear out the conclusions to which my own experience had enabled me to come, have been related to me by witnesses, in whom I can place all possible reliance. A friend informed me that last autumn he saw a woman stung in the hand by one of these fishes; the poor woman immediately uttered loud cries and seemed to suffer great agony, while in an incredibly short time after the wound the hand had become enormously swollen, and exhibited considerable inflammatory redness. No observations were made on the progress of the case.

The spines of the opercula will be found on examination to be deeply grooved along the edges (*a, a, a', a'*), each groove terminating at the base of the spine in a conical cavity (*b, b'*) excavated in the posterior edge of the bony part of the operculum. In the sides of these excavations the edges of the grooves lose themselves, so that there is a perfect continuity between each groove and the corresponding cavity.

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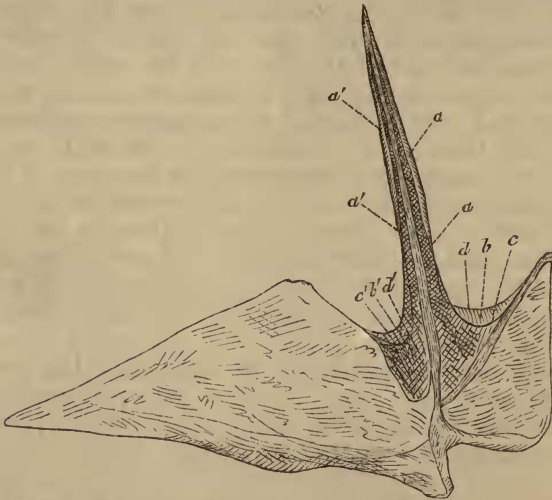
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From the posterior edge of the operculum the integument is continued over the spine to within a very short distance of



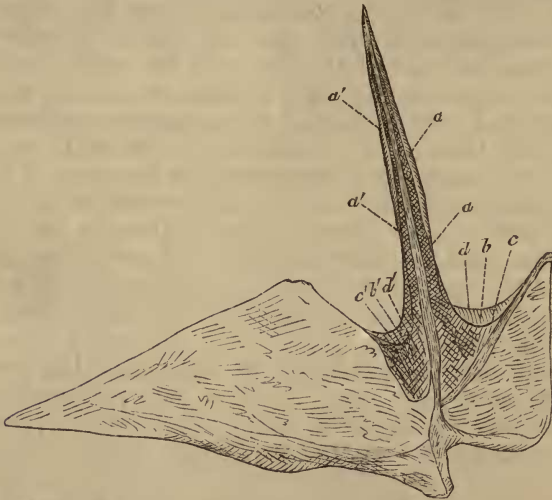
the point; by which means the spine is inclosed in a complete sheath for nearly its entire length, and the groove at each side is converted into a perfect tube, extending from the conical cavity at the base almost to the point of the spine.

The result of this arrangement, is a structure beautifully adapted for the conveyance of a fluid from the base to the apex of the spine.

The spines of the dorsal fin are also grooved, but the grooves disappear towards the base, after becoming superficial, and do not terminate in cavities similar to those at the bases of the spines of the opercula.

I have not as yet been able to detect any specific gland connected with this apparatus. There is, indeed, in the bottom of each of the conical cavities above-mentioned, a small pulpy mass, which may possibly be of a glandular nature; but in ascribing to it the property of secreting the virus, I do nothing more than hazard a distant conjecture. It seems, indeed, to be chiefly composed of fatty matter; and on puncturing my hand with a lancet and introducing a little of this substance taken from a fish which had been about twenty-four hours dead, no phenomena of any interest were the result, there being merely a slight smarting produced, such as might be expected from the introduction of any such extraneous matter into a recent wound, and very different indeed from the intense pain produced by the sting of the living fish. The property of secreting the virus may probably with more truth be ascribed to

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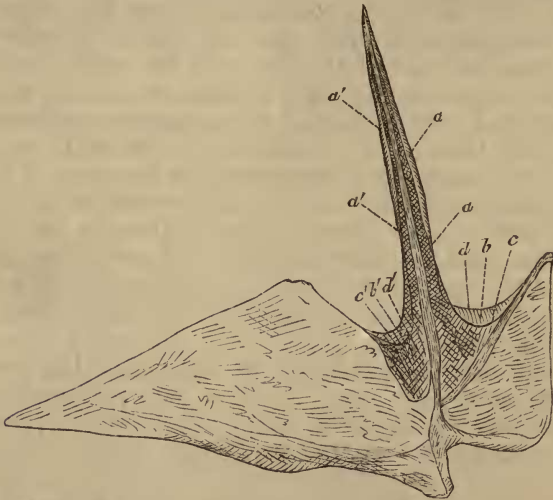
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This little fish is much dreaded by the fishermen on the southern coast of Ireland; and an opinion prevails among them, that the pain of its sting will last until the tide has again arrived at the height at which it stood when the wound was inflicted. This opinion, which is altogether incorrect, is universally believed by the fishermen of the south of Ireland; and I was surprised to find, from the following passage in Willughby's 'Fishes,' that it is neither confined to any particular district, nor of modern origin: "Dolor ab ictu excitatus (ut nobis retulere piscatores) per duodecim horas durat admodum vehemens, hoc est donec mare novo accessu recessive ad eundem altitudinis modum seu terminum redeat, deinde paulatim remittit."

Though the Weever is held in particularly bad repute by the fishermen, their terror is by no means confined to it, as the different species of *Cottus*, and some other spiny fishes, are not exempted from the imputation of inflicting poisoned wounds; and many of them are confounded under a common unpronounceable Irish name, which may, I believe, be translated "Sting Devil." These fishes, however, though furnished with formidable spines, appear altogether destitute of any poisonous qualities. I have frequently, indeed, allowed the *Cottus Bubalis* to inflict deep punctures on my fingers without experiencing the slightest unpleasant consequences, beyond those of an ordinary puncture; and it must also be remarked, that the spines of *Cottus*, and of other fishes which I have examined, and which are commonly supposed to be venomous, are of altogether a different structure from those of *Trachinus*, and not at all adapted for the introduction of virus into the wound inflicted by them.

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#### EXPLANATION OF THE FIGURE.

Right opercular spine of *Trachinus Vipera*, with the sheath removed, viewed upon the external surface, and magnified about six times in linear extent.

*a, a, a', a'*. The grooves in the edges of the spine.

*b, b'*. The conical cavities in which the grooves terminate.

*c, c'*. The external walls of the cavities.

*d, d'*. The internal walls.

The parietes of the cavities being transparent, *d'* is represented as visible through the external wall.

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the pulpy sheath of the spine; but this, too, is nothing more than conjecture.

This little fish is much dreaded by the fishermen on the southern coast of Ireland; and an opinion prevails among them, that the pain of its sting will last until the tide has again arrived at the height at which it stood when the wound was inflicted. This opinion, which is altogether incorrect, is universally believed by the fishermen of the south of Ireland; and I was surprised to find, from the following passage in Willughby's 'Fishes,' that it is neither confined to any particular district, nor of modern origin: "Dolor ab ictu excitatus (ut nobis retulere piscatores) per duodecim horas durat admodum vehemens, hoc est donec mare novo accessu recessive ad eundem altitudinis modum seu terminum redeat, deinde paulatim remittit."

Though the Weever is held in particularly bad repute by the fishermen, their terror is by no means confined to it, as the different species of *Cottus*, and some other spiny fishes, are not exempted from the imputation of inflicting poisoned wounds; and many of them are confounded under a common unpronounceable Irish name, which may, I believe, be translated "Sting Devil." These fishes, however, though furnished with formidable spines, appear altogether destitute of any poisonous qualities. I have frequently, indeed, allowed the *Cottus Bubalis* to inflict deep punctures on my fingers without experiencing the slightest unpleasant consequences, beyond those of an ordinary puncture; and it must also be remarked, that the spines of *Cottus*, and of other fishes which I have examined, and which are commonly supposed to be venomous, are of altogether a different structure from those of *Trachinus*, and not at all adapted for the introduction of virus into the wound inflicted by them.

Believe me, dear Sir, very faithfully yours,

GEO. JAS. ALLMAN.

William Thompson, Esq., &c., Belfast.

#### EXPLANATION OF THE FIGURE.

Right opercular spine of *Trachinus Vipera*, with the sheath removed, viewed upon the external surface, and magnified about six times in linear extent.

*a, a, a', a'*. The grooves in the edges of the spine.

*b, b'*. The conical cavities in which the grooves terminate.

*c, c'*. The external walls of the cavities.

*d, d'*. The internal walls.

The parietes of the cavities being transparent, *d'* is represented as visible through the external wall.